

**IN THE CLAIMS**

1. - 9. (canceled)

10. (withdrawn) A transmission system for controlling the transmission of a multiplexed signal via a section, the system comprising:

a sending apparatus including:

signal dividing means for dividing the multiplexed signal to generate a plurality of divided signals in the STS or STM transmission interface format;

guarantee information adding means for adding guarantee information for guaranteeing the continuity of the divided signals to each of the divided signals; and

WDM signal sending means for converting the divided signals to which the guarantee information is added to optical signals with wavelength different from one another to perform wavelength multiplexing on the optical signals and sending the optical signals; and

a receiving apparatus including:

WDM signal receiving means for receiving the optical signals, separating the optical signals according to wavelengths, and converting the optical signals to the divided signals; and

signal restoring means for constructing the divided signals on the basis of the guarantee information to restore the multiplexed signal.

11. (withdrawn) The transmission system according to claim 10, wherein the guarantee information adding means adds at least one of information regarding the type of the multiplexed

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signal, the frame number of the multiplexed signal, the frame number of the multiplexed signal, and a division number at the time of dividing the multiplexed signal to the divided signal as the guarantee information.

12. (withdrawn) The transmission system according to claim 10, wherein the guarantee information adding means adds the guarantee information in byte C1 of a relay section overhead for the divided signal.

13. (withdrawn) A sending apparatus for controlling the sending of a signal via a section, the apparatus comprising:

signal dividing means for dividing a multiplexed signal to generate a plurality of divided signals in the STS or STM transmission interface format;

guarantee information adding means for adding guarantee information for guaranteeing the continuity of the divided signals to each of the divided signals; and

WDM signal sending means for converting the divided signals to which the guarantee information is added to optical signals with wavelengths different from one another to perform wavelength multiplexing on the optical signals and sending the optical signals.

14. (withdrawn) A receiving apparatus for controlling the receiving of a signal via a section, the apparatus comprising:

WDM signal receiving means for receiving wavelength-multiplexed optical signals, separating the optical signals according to wavelengths, and converting the optical signals to divided signals generated by dividing a multiplexed signal; and

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signal restoring means for restoring the multiplexed signal by constructing the divided signals on the basis of the guarantee information for guaranteeing the continuity of the divided signals included in the divided signals.

15. (previously presented) A transmission system for controlling the transmission of a concatenation signal, the system comprising:

a sending apparatus including:

signal dividing means for dividing, according to a bit rate available for a transmission line, the concatenation signal to generate a plurality of divided signals which are concatenation signals having a SONET or SDH multiplexed interface, the bit rate of which is lower than that of the original concatenation signal;

guarantee information adding means for adding guarantee information for guaranteeing the continuity of the divided signals to each of the divided signals to generate transmission signals;

signal sending means for assigning the transmission signals to transmission lines to have capacity that is suitable for service contents and sending the transmission signals to one address, in parallel via a plurality of the transmission lines on which the bit rate is limited;

a receiving apparatus including:

signal receiving means for receiving the transmission signals;

signal restoring means for restoring the original concatenation by constructing the divided signals on the basis of the guarantee information; and

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wherein the receiving apparatus further includes delay information notifying means for giving the sending apparatus delay information regarding delays which have occurred at the time of receiving the transmission signals;

and wherein the signal sending means calculates the bit rates of the divided signals respectively on the basis of the delay information;

and wherein the signal dividing means divides the concatenation signal to meet the conditions that  $X_1 + \dots + X_n = X$ , that all the divided signals should reach by time  $t_1$ , and that  $X_1 \geq X_2 \geq \dots \geq X_n$

where  $X$  is the bit rates of the concatenation signal and  $X_1 - X_n$  are the bit rates of the divided signals and  $t_1$  is a receiving end time of a divided signal which arrived at the receiving apparatus fastest.

16. (previously presented) A transmission system for controlling the transmission of a concatenation signal, the system comprising:

a sending apparatus including:

signal dividing means for dividing, according to a bit rate available for a transmission line, the concatenation signal to generate a plurality of divided signals which are concatenation signals having a SONET or SDH multiplexed interface, the bit rate of which is lower than that of the original concatenation signal;

guarantee information adding means for adding guarantee information for guaranteeing the continuity of the divided signals to each of the divided signals to generate transmission signals;

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signal sending means for assigning the transmission signals to transmission lines to have capacity that is suitable for service contents and sending the transmission signals to one address, in parallel via a plurality of the transmission lines on which the bit rate is limited;

a receiving apparatus including:

signal receiving means for receiving the transmission signals;

signal restoring means for restoring the original concatenation by constructing the divided signals on the basis of the guarantee information; and

wherein the receiving apparatus further includes delay information notifying means for giving the sending apparatus delay information regarding delays which have occurred at the time of receiving the transmission signals;

and wherein the signal sending means calculate the bit rates of divided signals respectively on the basis of the delay information;

and wherein the bit rate BR is given by  $BR=X*(T / (T-t))$

where X is the bit rate of a first divided signal which arrives at the receiving apparatus fastest and T is time distance from a receiving start time (t0) of the first divided signal to a receiving end time (t1) and t is the delay information, is a value for a difference of the time (t1) and a receiving end time of a second divided signal which arrives at the receiving apparatus later than the first divided signal.

17. (canceled)

18. (new) The transmission system according to claim 15, wherein the guarantee information adding means adds at least one of information regarding the type of the

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concatenation signal, the frame number of the concatenation signal, and a division number at the time of dividing the concatenation signal to the divided signal as the guarantee information.

19. (new) The transmission system according to claim 16, wherein the guarantee information adding means adds at least one of information regarding the type of the concatenation signal, the frame number of the concatenation signal, and a division number at the time of dividing the concatenation signal to the divided signal as the guarantee information.

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